

**APPENDIX C****NONRADIOLOGICAL MONITORING RESULTS**

Effluent and environmental samples are analyzed for nonradiological parameters. Tables summarizing monitoring results from 2000 are presented in this Appendix. Nonradiological airborne effluent rates are calculated using a mass balance approach and the annual emission rate is reported as a percent of the applicable EPA standard. The remainder of the tables show:

- number of samples analyzed during the year,
- minimum concentration measured,
- maximum concentration measured,
- average value, and, when appropriate,
- a comparison to a DOE or EPA standard.

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**Table C-1. Nonradiological Air Emissions Data for 2000**

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Pollutant	Emission Rate (tons/yr) <sup>b</sup>	Emission Threshold Limit (tons/yr) <sup>a</sup>	% of Standard
Total suspended particulates	8.3	100	8.3
Sulfur dioxide	0.2	100	0.2
Nitrogen oxides	14.3	100	14.3
VOCs	0.6	100	0.6
Carbon monoxide	3.9	100	3.9

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<sup>a</sup> Threshold limits defined in 40 CFR Part 70 and Ohio Administrative Code 3745-77, Title V Permits

<sup>b</sup> Emission rates are calculated using a material balance approach or AP-42 (EPA, 1985) emission factors.

## Nonradiological Monitoring Results

Table C-2. 2000 Particulate Air Concentrations

Sampling Location*	Number of Samples	Particulate Concentration (µg/m <sup>3</sup> )		Arithmetic Average <sup>a,b</sup> (µg/m <sup>3</sup> )
		Minimum	Maximum	
<b>Offsite</b>				
101	51	19	44	30 ± 2
102	51	14	41	23 ± 2
103	51	14	36	24 ± 2
104	51	18	47	28 ± 2
105	51	15	62	26 ± 2
111	50	20	62	33 ± 2
112	50	18	50	29 ± 2
115	51	15	50	25 ± 2
118	51	17	47	27 ± 2
119 <sup>c</sup>	49	17	47	27 ± 2
124	51	17	56	31 ± 2
CLN	50	19	51	34 ± 2
<b>Onsite</b>				
211	51	18	45	29 ± 2
212	38	18	47	28 ± 2
213	48	21	117	42 ± 6
214	47	16	38	25 ± 2
215	46	20	71	36 ± 4
215T	51	16	99	36 ± 5
216	48	17	63	35 ± 3
217	51	17	41	28 ± 2
218	51	17	138	30 ± 5

<sup>a</sup> Values are weekly averages. Error limits are estimates of the standard error of the estimated mean at the 95% confidence level.

<sup>b</sup> Ohio ambient air quality standard is  $50 \mu\text{g}/\text{m}^3$  (3-year average).

<sup>c</sup> Background location.

\* Sampling locations shown on Figures 4-4 and 4-5 for onsite and offsite sampling stations, respectively.

Table C-3. NPDES Permit and ATD Data for 2000

Sampling Location *	No. of Samples	Minimum	Maximum	Annual Average	Highest Monthly Average	NPDES Permit Limit	
						Daily	Monthly Average
Outfall 601 Parameters							
Flow rate, MGD	a	0.011	0.225	0.045	0.064	n/a	n/a
pH, s.u.	203	7.07	8.60	7.79	8.00	6.5-9.0	n/a
Chlorine: total <sup>d</sup> , mg/L	103	< 0.01	0.05	< 0.01	< 0.01	n/a	n/a
Suspended solids, mg/L	104	< 1	12.0	1.7	3.6	30	15
Fecal coliform <sup>d</sup> , n/100mL	27	1	170	7 <sup>e</sup>	26 <sup>e</sup>	2000	1000
Ammonia, mg/L as N	26	< 0.30	0.52	< 0.30	< 0.30	n/a	n/a
CBOD <sub>5</sub> , mg/L	104	< 4	10.0	< 4	4.0	15	10
Oil and grease <sup>b</sup> , mg/L	4	< 5	< 5	< 5	< 5	n/a	n/a
Cadmium, µg/L	12	< 1	< 1	< 1	< 1	n/a	n/a
Chromium, µg/L	12	< 2	< 2	< 2	< 2	n/a	n/a
Copper, µg/L	26	< 5	82.6	35.6	82.6	n/a	n/a
Nickel, µg/L	12	< 5	9.0	< 5	9.0	n/a	n/a
Lead, µg/L	12	< 1	2.1	< 1	2.1	n/a	n/a
Zinc, µg/L	12	< 50	67	< 50	67	n/a	n/a
VOCs <sup>b,f</sup>	4	ND	5.6	2.05	5.6	n/a	n/a
Outfall 602 Parameters							
Flow rate, MGD	a	0.000	0.540	0.061	0.123	n/a	n/a
pH, s.u.	51	7.10	8.80	8.36	8.60	6.5-9.0	n/a
Suspended solids <sup>c</sup> , mg/L	50	< 1	93.0	14.2	31.0	45	30
Chemical oxygen demand, mg/L	50	< 1	1650	138	431	n/a	n/a
Oil and grease, mg/L	12	< 5	6.0	< 5	6.0	10	n/a

<sup>a</sup> Continuous.<sup>f</sup> Chloroform results reported (no other compounds detected).<sup>b</sup> Quarterly samples collected in Mar., Jun., Aug., Dec.<sup>\*</sup> Sampling locations shown on Figure 5-1.<sup>c</sup> Limit n/a if > 0.25 inches of rainfall 2 days during the week.

ND = below minimum detection limit.

<sup>d</sup> Summer months only (May 1 through October 31).

MGD = million gallons per day.

<sup>e</sup> Average reported as a geometric mean.

n/a = not applicable, no permit limits.

## Nonradiological Monitoring Results

**Table C-3. NPDES Permit and ATD Data for 2000 (continued)**

Sampling Location*	No. of Samples	Minimum	Maximum	Annual Average	Highest Monthly Average	NPDES Permit Limit	
						Daily	Monthly Average
Outfall 002 Parameters							
Flow rate, MGD	a	0.016	1.920	0.396	0.653	n/a	n/a
pH, s.u.	53	7.00	8.51	7.81	8.10	6.5-9.0	n/a
Suspended solids <sup>c</sup> , mg/L	51	< 1.0	117.0	15.4	34.8	45	30
Outfall 001 Parameters							
Flow rate, MGD	a	0.013	0.720	0.103	0.186	n/a	n/a
pH, s.u.	27	7.30	8.70	8.21	8.50	6.5-9.0	n/a
Cyanide, µg/L	12	< 5	< 5	< 5	< 5	n/a	n/a
Cadmium, µg/L	12	< 1	< 1	< 1	< 1	n/a	n/a
Chromium, µg/L	12	< 2	< 2	< 2	< 2	n/a	n/a
Copper, µg/L	12	20.0	84.4	42.4	84.4	120	n/a
Nickel, µg/L	12	< 5	24.8	6.1	24.8	n/a	n/a
Lead, µg/L	12	< 1	3.4	1.1	3.4	n/a	n/a
Zinc, µg/L	12	< 50	57.0	< 50	57.0	n/a	n/a

<sup>a</sup> Continuous.

MGD = million gallons per day.

<sup>c</sup> Limit n/a if > 0.25 inches of rainfall 2 days during the week.

n/a = not applicable, no permit limits.

\* Sampling locations shown on Figure 5-1.

Table C-3. NPDES Permit and ATD Data for 2000 (continued)

Sampling Location*	No. of Samples	Minimum	Maximum	Annual Average	Highest Monthly Average	ATD Limit	
						Daily	Monthly Average
Outfall 003 Parameters							
Flow rate, MGD	a	0.035	0.165	0.123	0.143	n/a	n/a
pH, s.u.	54	7.54	8.23	7.83	8.10	6.5-9.0	n/a
Dissolved oxygen, mg/L	53	9.53	12.10	10.36	11.50	n/a	n/a
Dissolved solids, mg/L	26	388.5	800.0	663.6	723.5	n/a	n/a
Suspended solids, mg/L	26	< 1	1.5	< 1	< 1	45	30
CBOD <sub>5</sub> , mg/L	12	< 4	8.0	< 4	8.0	n/a	n/a
Mercury, µg/L	52	< 0.2	< 0.2	< 0.2	< 0.2	2.2	0.023
Selenium, µg/L	12	< 5	< 5	< 5	< 5	n/a	n/a
Silver, µg/L	12	< 0.5	< 0.5	< 0.5	< 0.5	n/a	n/a
Chromium, µg/L	52	< 2	< 2	< 2	< 2	9800	1100
Copper, µg/L	52	< 5	< 5	< 5	< 5	120	65
Nickel, µg/L	27	< 5	6.3	< 5	< 5	n/a	n/a
Lead, µg/L	27	< 1	1.8	< 1	< 1	n/a	n/a
Zinc, µg/L	27	< 50	< 50	< 50	< 50	n/a	n/a
VOCs <sup>f</sup> , µg/L	12	ND	ND	ND	ND	10	5
Bis (2-ethylhexyl) phthalate <sup>b</sup> , µg/L	4	< 5	< 5	< 5	< 5	n/a	n/a
Ceriodaphnia dubia <sup>b</sup>							
acute, TU	4	ND	ND	ND	ND	1.0	n/a
chronic, TU	4	ND	2.8	0.7	2.8	2.8	n/a
Pimephales promelas <sup>b</sup>							
acute, TU	4	ND	ND	ND	ND	1.0	n/a
chronic, TU	4	ND	ND	ND	ND	2.8	n/a

<sup>a</sup> Continuous.

\* Sampling locations shown on Figure 5-1.

<sup>b</sup> Quarterly samples collected in Mar., Jun., Aug., Dec.

MGD = million gallons per day.

<sup>f</sup> Chloroform results reported (no other compounds detected).

ND = below minimum detection limit.

## ***Nonradiological Monitoring Results***

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TU = toxicity units.

n/a = not applicable, no permit limits.